

Demanding physical work associated with an increased risk of cardiovascular disease

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Two studies presented at this year's EuroPREvent 2013 congress suggest that demanding physical work has a detrimental effect on an individual's risk of coronary heart disease.

The first was a case-control study described by Dr Demosthenes Panagiotakos, Associate Professor of Biostatistics-Epidemiology at Harokopio University, Athens, which evaluated occupation in 250 consecutive patients with a first stroke, 250 with a first acute [coronary event](#) and 500 equally matched controls.(1) Overall, when assessed on a 9-unit scale (1 = physically demanding work and 9 = sedentary/mental work) the analysis showed that those suffering the stroke and coronary events were more commonly engaged in physically demanding occupation than the controls.

After adjusting for various potential confounding factors such as age, sex, body mass index, smoking, hypertension, [hypercholesterolemia](#), diabetes, family history of cardiovascular disease and adherence to the [Mediterranean diet](#), results confirmed that those occupied in progressively less physically demanding jobs (that is, for each unit increase of the scale) were associated with a 20% lower likelihood of acute coronary events (a statistically significant odds ratio of 0.81%) or of ischaemic stroke (odds ratio 0.83%).

Commenting on the results, Dr Panagiotakos said that subjects with physically demanding manual jobs should be considered a primary target group for prevention of cardiovascular disease because of their higher

risk.

Within the context of exercise recommendations, he noted that the somewhat paradoxical results could possibly be attributed to the stress experienced by people with physically demanding jobs. Stress, he added, may be one reason why hard physical work may not be comparable to the [physical exercise](#) recommended for health and well-being, which tend to be non-stressful behaviours. In addition, he explained, such work is often not well paid, which may restrict access to the healthcare system.

A second study reported here from investigators in Belgium and Denmark also supports the view that physically demanding work is a risk factor for coronary heart disease, even when leisure-time activity is taken into account.(2)

This was a cohort study of more than 14,000 middle-aged men who were free of coronary disease at the outset of the study in 1994-1998. Standardised questionnaires were used to assess socio-demographic factors, job strain and the level of [physical activity](#) at work and during leisure time. Classical coronary risk factors were also measured through clinical examinations and questionnaires.

The incidence of coronary events was monitored during a mean follow-up time of 3.15 years, with statistical modelling applied to assess the association between physical activity and coronary disease. Again, adjustments were made for age, education, occupational class, job strain, [body mass index](#), smoking, alcohol consumption, diabetes, blood pressure, and cholesterol.

Results during follow-up showed an overall beneficial effect of leisure time physical activity, but an adverse effect of demanding physical work. However, Dr Els Clays, from the Department of Public Health at the University of Ghent, Belgium, added that an "interaction effect" was

also evident in the results: while moderate-to-high physical activity during leisure time was associated with a 60% reduced risk of coronary events in men with low occupational physical activity (a statistically significant hazard rate of 0.40), this protective effect was not observed in those workers who were also exposed to high physical work demands (HR 1.67).

Dr Clays added that, after adjusting for socio-demographic and well established coronary risk factors, men with high physical job demands were more than four times likely to have [coronary heart disease](#) when they also engaged in physical activity during leisure time (HR 4.77).

Commenting on the results Dr Clays said: "From a public health perspective it is very important to know whether people with physically demanding jobs should be advised to engage in leisure time activity. The results of this study suggest that additional physical activity during [leisure time](#) in those who are already physically exhausted from their daily occupation does not induce a 'training' effect but rather an overloading effect on the cardiovascular system. However, only few studies until now have specifically addressed this interaction among both types of physical activity, and conflicting findings have been reported. More research using detailed and objective measures of activity is needed."

More information: 1. Panagiotakos D, Georgousopoulou E, Kastorini CM, et al. Physically demanding occupation is associated with higher likelihood of a non-fatal acute coronary syndrome or ischemic stroke: a case/case-control study, Presented at EuroPREvent 2013 Final Programme Number P67.

2. Clays E, De Bacquer D, Janssens H, et al. Physical work demands and leisure time physical activity in relation to risk for coronary heart disease, Presented at EuroPREvent 2013 Final Programme Number P76.

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